

WHAT IS CLAIMED IS:

1. A method for modifying the cell cycle of a cell, comprising
modifying the level of p193 protein in the cell and/or interfering with the p193
5 signal transduction pathway in the cell.

2. The method of claim 1, which comprises decreasing the level of
pro-apoptotic p193 protein in the cell, so as to suppress apoptosis in and/or
increase the proliferative potential of the cell.

10

3. The method of claim 1, which comprises increasing the level of pro-
apoptotic p193 protein in the cell, so as to induce apoptosis in the cell.

Sub 03

15

4. The method of ~~any of claims 1-3~~, wherein the cell is a mammalian
cell.

5. The method of claim 4, wherein the cell is a human cell.

6. The method of claim 2, which comprises introducing nucleic acid
20 encoding a portion of or all of the p193 protein into the cell in the antisense
orientation, so as to decrease the level of p193 protein activity in the cell.

7. The method of claim 1, which comprises introducing nucleic acid
encoding a dominant-negative p193 protein into the cell, so as to suppress
25 apoptosis and/or increase the proliferative potential of the cell.

8. The method of claim 3, which comprises introducing nucleic acid
encoding a pro-apoptotic p193 protein into the cell, so as to express said p193
protein and induce apoptosis in the cell.

30

9. The method of claim 1, also comprising modifying the level of p53 protein in the cell and/or interfering with the p53 signal transduction pathway in the cell.

5
Sub 4
10. The method of claim 1 or 9, also comprising modifying the level of E1A protein in the cell.

11. An expression vector including nucleic acid encoding a p193 protein.

12. The expression vector of claim 11 wherein said nucleic acid is in the antisense orientation.

13. The expression vector of claim 11 wherein said p193 protein is a pro-apoptotic p193 protein.

14. The expression vector of claim 11 wherein said p193 protein includes a dominant negative mutation.

15. A host cell comprising introduced nucleic acid encoding a p193 protein.

16. The host cell of claim 15 wherein said nucleic acid encodes a pro-apoptotic p193 protein.

17. The host cell of claim 15 wherein said nucleic acid encodes a p193 protein including a dominant negative mutation.

18. An isolated p193 protein.

19. The isolated p193 protein of claim 18, having the amino acid sequence set forth in SEQ ID NO:2 or in SEQ. ID NO:4.

20. A composition comprising an isolated p193 protein of claim 18 or 19, and a carrier.

21. A method of inducing apoptosis in a cell, comprising expressing in said cell an amount of a pro-apoptotic p193 protein effective to induce apoptosis in said cell.

22. The method of claim 21 wherein said cell is an inappropriately proliferative cell.

10

23. An expression vector comprising a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 or an amino acid sequence having at least about 70% identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

15

24. An expression vector comprising a nucleic acid sequence encoding a polypeptide having the amino acid sequence of SEQ ID NO:2 from residue 1 to residue 1152 or of SEQ ID NO:4 from residue 1 to 1173, or an amino acid sequence having at least about 70% identity to the amino acid sequence of SEQ ID NO:2 from residue 1 to residue 1152 or of SEQ ID NO:4 from residue 1 to residue 1173.

20

25. The expression vector of claim 24, wherein said polypeptide suppresses apoptosis and/or induces proliferation in a cell in which it is expressed.

25

26. An expression vector comprising a nucleic acid sequence having at least 70% identity to nucleotides 62 to 5128 of SEQ ID NO:1 or nucleotides 87 to 5183 of SEQ ID NO:3.

30

27. An expression vector comprising a nucleic acid sequence having at least about 70% identity to nucleotides 62 to 3517 of SEQ. ID NO:1 or to nucleotides 87 to 3615 of SEQ. ID NO:4.

28. A protein of claim 18, said protein being a recombinant protein.

29. A recombinant protein of claim 26, which has the amino acid
5 sequence set forth in SEQ ID NO:2 or SEQ ID NO: 4 or an amino acid sequence
having at least about 70% identity to the amino acid sequence set forth in SEQ ID
NO:2 or SEQ ID NO:4.

30. A recombinant protein of claim 28, which has the amino acid
10 sequence set forth in SEQ ID NO:2 from residues 1 to 1152 or set forth in SEQ ID
NO: 4 from residues 1 to 1173, or an amino acid sequence having at least about
70% identity to the amino acid sequence set forth in SEQ ID NO:2 from residues 1
to 1152 or set forth in SEQ ID NO:4 from residues 1 to 1173.

31. A composition, comprising an antibody to a p193 protein.

32. The composition of claim 31, wherein said antibody is a
monoclonal antibody.

33. The composition of claim 31, wherein said antibody is a polyclonal
antibody.

34. A method for producing a p193 protein, comprising culturing a host
cell having introduced DNA encoding a p193 protein under conditions suitable for
25 expression of said introduced DNA.

35. An isolated apoptosis-associated protein comprising a BH3 domain
including the amino acid sequence:

Leu Lys Ala His Gly Asp Glu.

30

36. An isolated nucleic acid molecule encoding an apoptosis-associated
protein comprising a BH3 domain including the amino acid sequence:

Leu Lys Ala His Gly Asp Glu.

37. A method for screening an agent for effect on the cell cycle of a cell, comprising contacting a cell having introduced nucleic acid encoding a p193 protein with the agent and assessing the effect of the agent on the cell.

38. A method of claim 37 wherein the introduced nucleic acid is introduced DNA encoding a pro-apoptotic p193 protein.

39. A method of claim 38, wherein the introduced DNA comprises a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4 or an amino acid sequence having at least about 70% identity to the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

40. A method of claim 39, wherein the introduced DNA comprises a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.